CHAPTER I

EVALUATION

What is evaluation? Realizing how Aristotelian any definition may be which uses the "is" of identification, I shall attempt an operational definition which may be termed, therefore, non-Aristotelian. This would be true because, unlike most definitions, it would not follow Aristotle's first law of thought, known as the law of identity, in which he postulates that "A is A." An operational definition of "evaluation," therefore, would run something like this:

"Evaluation applies to the similarities and differences of a given proposition to other propositions on the same subject in such a way as to avoid identification with other propositions, so that a final judgement as to its value relative to such other propositions may be reached."

Suppose I am asked to evaluate such a proposition as "the world is round." First, according to this operational definition of "evaluation" I must acquaint myself with other propositions concerning the shape of the world. I find propositions that "the world is flat," "the world is like the inside of a vast sphere?" and a dozen other hypotheses current among ancient peoples. Working then on similarities and differences, I compare the shape of the world as I have been able to ascertain it, first with flat objects, then with the inside of spheres, etc. and note whatever differences there may be. I avoid identifying the world with anything else. I do not say "the world is a huge ball", but I do say "the world is similar to a huge ball." Finally I come up with a judgement based perhaps upon the fact that I have started out from New York and after travelling West for six months by train and ship I have arrived back in New York from the East. My final evaluation of the proposition "the world is round", therefore, is that it is true.

Now all evaluations are based upon observation, either past or present, and either personal or by proxy. Some human nervous system must at some time perform the operation of observation from which evaluation is made. And how does the human nervous system observe? Primarily through the five senses. Impacts from the world outside the skin reach either the eye, the ear, the nose, the fingers or the taste buds. But let us suppose that we are not in a position to observe. Suppose I had not personally ever circumnavigated the globe. How could I then evaluate its roundness? Here, we must rely upon second hand observation. We must hear and believe the evidence presented by others who have observed at first hand. If I accept their evidence I then act "as if" I, myself, had been around the world and form my judgement as to its roundness accordingly.

Suppose, however, I am a physicist who, of course, has never seen an atom, yet is called upon to evaluate the movement and properties of an atom. By what extra-neural means shall I then proceed? Here we meet

the scientific method. What we do is surmise what the atom is likely to do, and the results. For example, we theorize that if we move the atom swiftly enough, some of its electrons may leave it and become independent ions or attach themselves to other atoms and change the number of electrons normally revolving about the nucleus of both atoms and hence change both atoms' characteristics. So with an atom smasher, without ever observing with our senses what takes place, we smash the atom. And how do we know that our theories have worked out in practice? Because in the process a piece of metal with atoms of 80 electrons becomes a piece of metal with atoms of 78 electrons, and another piece of metal with atoms of 80 electrons becomes a piece of metal with atoms of 82 electrons. Thus we evaluate the change not by actually observing the process but by observing the result.

This action-at-a-distance employing extra-neural means has been the key to modern physics. The old dream of the alchemist, who sought to change lead into gold, has actually been realized by the modern physicist. Yet the process whereby we evaluate has not changed. We still evaluate, even through extra-neural means, by judging similarities and differences and avoiding identification. Human judgements are still necessary. We must still make assumptions before we can reach conclusions. Modern alchemy still needs the wizardry of the "as if." Our assumptions, or our hypotheses, must still precede our conclusions, or our theories. We must be able to communicate our findings to others so that they in turn may test our theories independently and get the same results. No scientist can operate in an ivory tower and achieve communicability, and without communicability his findings can never achieve the coherence which comes after his theories have been tested under similar, but different, circumstances and gained universal recognition.

Evaluation, therefore, is something that we are continually doing whether we are conscious of it or not. If I do not evaluate the distance between the ground and the bus step, I shall either stumble in getting on the bus, or fall on my face in getting off it. I do not realize how often I evaluate unconsciously through all my senses. Without evaluation I would soon not survive. If through my eye I couldn't evaluate the distance between myself and a passing street car; if through my ear I couldn't tell that an unseen automobile was approaching; if through my nose I couldn't detect a decayed piece of meat; if through my fingers I couldn't feel my way in the dark; or if through my taste-buds I failed to discover a bitter, decayed piece of fruit, I would not survive for long.

And just as we come to evaluate objects we come to evaluate people. I say, "I don't trust that man!" How have I reached that judgement? By similarities and differences. He reminds me of a shifty-eyed crook I once knew, or he does not act like my Sunday school teacher. I don't identify him with them as being the same person as they are, but by comparing him with these people I form a judgement. My evaluation is an integration of my own experience. How then do I "think" the way I do?

CHAPTER II

THE "THINKING" PROCESS

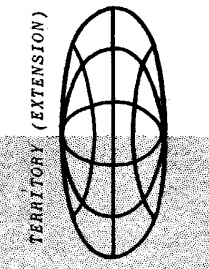
The word "think" has been put in quotes because it is Aristotelian. The Greeks had a word for what happens when the human nervous system receives the impact of an event from outside the skin; or of a vestige of memory, which becomes an impact from inside the skin; or a description of such an impact had by one nervous system and communicated to another. The word was "think." But the Greeks were not as familiar as we are today with what goes on when our nervous system receives such impacts, or how it abstracts, integrates, synthesizes and projects from them, all of which phenomena are included in what we have come to call "think." So we put such words in quotes in order to remind ourselves of the limitations of such a word's connotations.

An event happens. A vestige of memory occurs. Someone tells us something. Then we begin to abstract. We are all familiar with a legal abstract. It is a short synopsis of a longer legal document, from which we have selected everything that we think pertinent to the problem at hand. So when an event happens, like a fire, it happens on the event or process level. We seldom comprehend any event in its entirety. For example, if we see a house burning, and we see only the front of the house, we don't know whether the back is burning or not. Or we see an object, on the object level, and, treating it as an event, we never know all about it. If it's this event I call a pencil with which I am writing, I do not know what tree the cedar wood came from; where the graphite originally came from, or the enamel on the outside, or the rubber in the end.

However, I look at the fire or the pencil, and I begin to abstract. I say to myself that smoke and flame is not a red curtain; it is not a cloud; it is not this and it is not that, and by a process of taking away, or abstracting what it is not, I am finally able to project the meaning to it of something with which I am familiar. Thus the burning house or the pencil become objects, and I have stepped up one rung on the abstraction ladder, or proceeded to a higher level of abstracting, the object level. I have done this by showing the object's differences from or similarities to other objects with which I am familiar.

I want now to tell someone else what is happening. In order to do so I must name the event to which I have projected a meaning as an object. How do I determine what word to use so as to name it? Well, it is similar to other objects which I have learned to call "fire" or "pencil." It is different from other objects which I have learned to call "cloud" or "stick." By comparing it in structure with these other objects I evaluate it, and reach a judgement concerning what to name it. I will call the objects "fire" and "pencil." Now I have proceeded to a still higher level of abstracting, - the "word level". I, as well as the Greeks, have a word for it. I can now yell "fire" or say "pencil" and you will

HOW WE THINK



		CHOICES	LEVELS	"ETC." REJECTIONS
			PROCESS	Not an idea Not sub-microscopic Not microscopic
	ABSTRACTING PROJECTING		*OBJECT*	Not the process Not all the process Not a cylinder Not a log Not a carton
	SYMBOLIZATION (Comparison in structure)	"CAN"	*VERBAL*	Not the process Not all the process Not a large can Not a rusty can Not a battered can Not steel, wood or paper Not an open can
	CLASSIFICATION (Multi-dimensional order)	"A SMALL NEW TIN CAN, SEALED"	*DESCRIPTIVE*	Does not contain paint putty nails Is not leaking Not the process Not all the process
	EVALUATION (Infinite-valued relations)	"THE CAN CONTAINS FOOD"	*INFERENCE*	Not the process Not all the process Air has not entered Food is not spoiled Can is not useless Cans are not useless
	INTEGRATION-FUNCTION (Multi-dimensional order *and* infinite-valued relations)	"CANS ARE USEFUL"	*GENERALIZATION*	Not the process Not all the process An idea

SILENT — *ABSTRACTIONS FROM ABSTRACTIONS*

Neither "true" nor "false" until extensionalized by comparing in structure with the process.

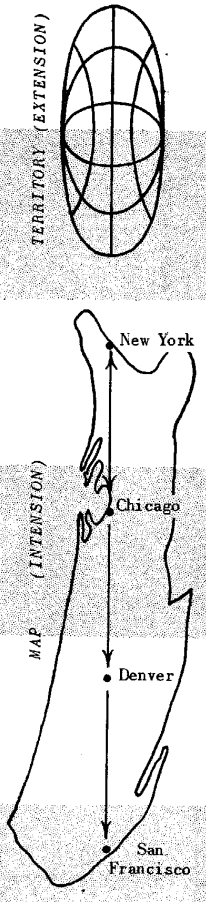
BY TEST
CAN_1 useful
CAN_2 useless

know the significance (Gr. semanticos) of what I say. It means something to both of us and we can now proceed to commumcate with each other about it and both know what it is each is talking about.

In order to talk about the "fire" or "pencil", you will want first of all my description of these erstwhile events which under the abstracting of my nervous system have now reached the word level. In order to describe what I saw when I saw the "fire" or the "pencil", I tell you what it resembled by using similarities and what it was not like by stressing differences. The more detailed my description of these event-object-words, the more vivid my description. You can ask me questions about them and I can reply, on the description level of abstracting. But to remain on this level I must confine myself to first hand accounts of what I saw, heard, felt, smelt or tasted. Never what I surmised was happening. If I start surmising I automatically move to the next higher level of abstraction, the inference level.

Now, here on the inference level I stop being a reporter and become an editorial writer. I tell how I "think" the "fire" started or where "graphite" was mined. I have no first hand proof from observation of these inferences, but I can imply almost anything, and if you are with me on the same level of abstracting that I am on, you will know that I am inferring and implying and you will not identify your levels of abstracting by believing that I am describing when all the time I am inferring. If I am in the witness chair and begin inferring when I should be describing, the opposing counsel would be lax indeed, if he did not object. As a legal witness I may not infer, nor may I say, what someone told me they saw. I must rely entirely upon my own nervous system. I cannot testify as to what I inferred he meant, only as to what he said or did which I heard with my own ears or saw with my own eyes. I am not permitted to give hearsay evidence. But what happens when I infer? Well, I take the same old similarities and differences, and I compare them in structure with something else and through this integration, I come up with "the fire was of incendiary origin", or "the graphite in this pencil came from Ceylon." Now I make this inference with no positive proof. I didn't actually see any one set a match to the building nor did I see them mine the graphite in Ceylon. But calling on vestiges of memory, and what others have told me about "fires" and "pencils," and knowing that the burning building housed a drygoods store whose proprietor's insurance policy was about to lapse, and whose business was bad, and whose bank account was low; or hearing that 90 percent or so of the world's graphite comes from Ceylon, I form an inference that the proprietor set fire to his building and that the graphite came from Ceylon. If my hearers hear my evidence as to why I infer these things, and also form similar inferences, I at least have an audience, even if I haven't any facts to sustain my inference. Now there is nothing wrong with making assumptions. Indeed, we must make assumptions in order to reach conclusions. But we must not confuse them with descriptions unless we are deliberately trying to dupe

HOW WE IDENTIFY



	CHOICES	LEVELS	"ETC." REJECTIONS
		PROCESS	Not an idea Not sub-microscopic Not microscopic
ABSTRACTING PROJECTING		*OBJECT*	Not the process Not all the process Not a cylinder Not a log Not a carton
SYMBOLIZATION (Comparison in structure)	" A CAN "	*VERBAL*	Not the process Not all the process Not a large can Not a rusty can Not a battered can Not steel, wood or paper Not an open can
CLASSIFICATION (No multi-dimensional order)	*IDENTIFYING DESCRIPTION* With inference Without classification		
EVALUATION (Finite-,not infinite-valued relations)	" THE CAN CONTAINS FOOD "	*INFERENCE*	Not the process Not all the process Air has not entered Food is not spoiled Can is not useless Cans are not useless
INTEGRATION-FUNCTION (Finite-,not infinite-valued relations)	" CANS ARE USEFUL"	*GENERALIZATION*	Not the process Not all the process An idea

Neither "true" nor "false" until extensionalized by comparing in structure with the process.

BY TEST
CAN_1 contains paint
CAN_2 is leaking

someone. And that is exactly what the seller of blue sky mining stock or "Pravda" (the truth!) is constantly trying to do to us. They are feeding us inferences and calling them descriptions. They are deliberately identifying (treating as though they were the "same") two entirely different levels of abstracting.

Well, now for a little jumping to conclusions. I look at the "fire" or the "pencil", each of them now an event-object-word-description-inference and I conclude "all fires are of incendary origin" or "the graphite in all pencils comes from Ceylon". Now, "all fires" and "all pencils" is a tall order. I haven't seen all fires nor have I seen all pencils. And even if I had, I have no means of telling whether all fires are of incendiary origin, or the graphite in all pencils comes from Ceylon. However, as soon as I think this or make such a statement I move up to the highest level of abstracting - the generalization level. Now, believe it or not, this is a very safe level of abstracting to be on. Any candidate for public office who climbs up on it and stays there has a good chance of being elected, because no one can successfully deny the generality "democracy is good", at least not in this country. "Liberte, egalite, fraternite" helped win the French Revolution. "The dictatorship of the Proletariat" put it over for the Commies. Each of these is on the generalization level. They can't be proved or disproved. If you want to prove or disprove them you must bring these statements down to the inference or description levels, at least, where facts can be marshalled to prove or disprove them.

So we don't act on our generalizations, if we are wise, until we have compared them in structure with the events from which we have abstracted them. And how do we do this? Well we do this by scientific evaluation. If "democracy is good" then there must be hundreds of events which we can remember or read about that will help prove it. If all fires are of incendiary origin, then world almanacs, newspaper files, cases in the court records, ect., ought to be able to help us prove it. And if the graphite in all pencils comes from Ceylon, there should be sufficient evidence in books, or records of the Bureau of Mines to substantiate it. Most of us, however, love to sit perched on our high level abstractions and be against sin and for democracy without ever going to the trouble synthesizing our abstractions. And what is worse we insist upon projecting our untested generalities into the nervous systems of all the people of the U.S. within hearing range of us.

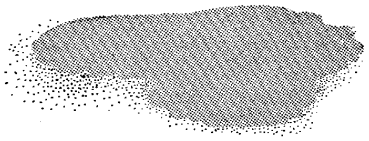
NON-ALLNESS
NON-IDENTIFICATION

ABSTRACTIONS FROM ABSTRACTIONS

LEVELS	MAP (INTENSION) SPOKEN	MAP (INTENSION) WRITTEN
VERBAL	" Can "	*Can*
	NOISE UTTERED	MARKS ON PAPER
DESCRIPTIVE	" A small new tin can, sealed"	*A small new tin can, sealed*
	NOISES UTTERED	MARKS ON PAPER
INFERENCE	" The can contains food "	*The can contains food*
	NOISES UTTERED	MARKS ON PAPER
GENERALIZATION	" Cans are useful "	*Cans are useful*
	NOISES UTTERED	MARKS ON PAPER

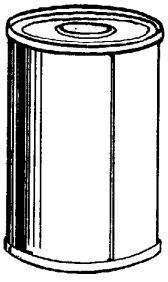
TERRITORY (EXTENSION)

PROCESS



SUB-MICROSCOPIC

OBJECT



MACROSCOPIC

SILENT LEVELS

WHATEVER YOU SAY IT " IS"

IT IS NOT ALL OF THIS - NON ALLNESS
IT IS NOT THIS - NON IDENTIFICATION

CHAPTER III

PROJECTION OF MEANING

Having abstracted a meaning from the event and then named it, described it, made inferences regarding it, and generalized about it, the human nervous system has need to project that meaning to others. If we were unable to communicate we wouldn't survive very long, and survival is the justification for all human behavior.

The means by which we project the meanings of our abstractions are well known. Orally, in writing, by gesture, by glance, - "every little movement" we make "has a meaning all its own." The manner in which the nervous system acquires the meaning which it projects is not so well understood. Basically there are three centers of integration - the spinal column, the thalamus, at the base of the brain, and the cortex in the forehead. All impacts from without pass through these centers in the above order. Some are integrated at the spinal column without further reference to the higher centers. Put your finger on a hot stove and notice how quickly you withdraw it. The spinal column took care of it, projected a meaning of "burn" to the arm, and a muscle flexed.

Others are too complex for the spinal column to act upon. These go to the thalamus. Someone comes up to you from behind and intends, you believe, to "mug" you. The thalamus is the watchdog of the human body - the first line of defense. It is the center which abstracts "danger!" from every event whose impact reaches it. Hearing stealthy footsteps behind you on a lonely street, late at night, the thalamus warns you, "look out - a mugger!" You stop and turn abruptly. The meaning of the sound has been projected to your muscles. They are tense. Your glands shoot adrenalin into your bloodstream. You are ready. Your thalamus has, perhaps, acted toward your survival.

The "mugger", when you face him, turns out to be your neighbor who is trying to catch up with you to tell you he will meet you at the golf course in the morning. Disgustedly the thalamus passes on this impact to the cortex. This is not a matter of life or death. The thalamus is not concerned with it. The cortex is that portion of the frontal lobe of the brain, harder than the other gray matter, where facts are recorded and filed and most judgements other than those concerning immediate survival are made. "Tomorrow morning? Let me see!" You say waiting for the cortex to consult the files. "Why yes! I think I can make it. At least I can think of nothing at this time to prevent it. Count me in," The cortex receives all the impacts upon the nervous system upon which the spinal column or thalamus do not act. It classifies them as the important, non-important, useful, not useful, by comparison for similarities and differences and then files them away for future reference. Some have red tags on them. Such as, "Smith told me to buy Anaconda copper. He's on the inside and knows what's going on. I must look into that!" or "She

said her telephone number was Eldorado 6-3519. I must remember that." All these facts are filed in the cortex and must be looked up. That is the reason that the human nervous system has cortically controlled delayed reactions; the reason the President, at a press conference, pauses and "thinks" before he answers a pertinent question; he's integrating,- that is, he is comparing his contemplated answer with similar answers people have given to the question in the past, for similarities or differences, and evaluating it for possible repercussions. All this is done in the cortex.

We start projecting meaning as a rule to our generalities. These constitutee the shortest, most succinct form in which we abstract meaning from the event. We turn to the chap at the next desk, as we are writing and we say: "Do you know that all the graphite in every lead pencil comes from Ceylon?" We have projected a meaning in the form of a generality from our abstraction from the event we call a "lead pencil." The chap across the aisle looks at his own pencil and says "No kidding!" His nervous system has received an impact in the form of a communication about an event - his lead pencil. The generality your cortex abstracted is on the way toward achieving communicability, toward being accepted as "true" by others.

Then the fellow across the aisle looks at us and says quizzically, "How do you know?" Well, that knocks us off the generalization level. How do we know, indeed! Oh, yes! We inferred it from a description we read somewhere. Now we begin projecting from a inference "Of course, I don't know it. I read somewhere where Ceylon produces most of the graphite in the world. This is graphite in this pencil. So I just assumed that the graphite in this pencil came from Ceylon."

"That isn't what you said," persists my pesky friend. "You said that all the graphite in every lead pencil comes from Ceylon."

"Well, yes, that's what I said, but you know how it is. We all tend to jump to conclusions."

"Where did you read about Ceylon producing most of the world's graphite?" persists my nosey friend.

"In this 1949 minerals yearbook put out by the U. S. Bureau of Mines. Here it is, on page 1326 under a table headed 'Graphite (Natural and Artificial) imported for Consumption in the U. S.' under '1949'. It shows a total of $1,260,467 of which $375,592 is from Ceylon."

"Let's see", persists your "pal". "Oh! Yeah? How about Mexico $417,982 and Madagascar $208,550? And look here! How about this? You're reading the value. Look at the weight - the short tons - Mexico 24,893, Ceylon 2,720, Madagascar 1846, and Canada 1832. Looks like you're all wet in making such a statement."

You could wring this guy's neck, but he's right. According to this book your description was wrong, hence your inference was wrong and therefore your generality was wrong. Now your friend is projecting not from a generality, nor from an inference, but from a description.

"What kind of graphite is used in making lead pencils?" this pest persists. "It says here there is crystalline graphite, both flake, and lump, chip or dust, and there's amorphous graphite, natural and artificial. Most of that we import is 'natural graphite', 29,298 out of 31,805 tons. This must be what we use in lead pencils."

"I don't know," you say dejectedly. The subject no longer interests you. But your pal is now projecting from the word level of abstraction. "Natural amorphous graphite. What does it mean?" He looks in Webster. "Here it says, 'Graphite - soft, black native carbon of metallic luster. It is used for lead pencils, crucibles, lubricants, etc.'" Well there's a definition. That's what we usually project from the word level - definitions. What an object "is", using the "is of identity." So graphite "is" carbon.

We take our lead pencil and try to write on a piece of carbon paper with it. No soap! Both must be carbon. Now we are projecting meaning from the level of the object.

Finally we look at our pencil and a piece of carbon paper. Here are two events. They are not identical but similar. We ask a chemist "What's the formula for graphite?" "H.,1-2, specific gravity 209-223", he tells us. He's classified it, not for security purposes, but in order to refer to its properties quickly and conveniently. Then we turn over a page in the "Minerals Year Book 1949" and find on page 1325, that out of 16,302 short tons of natural graphite consumed in the U. S. in 1949, 5,525 tons went into foundry facings, 2626 into batteries, 2,290 into lubricants, 2,035 into crucibles, 912 into stoppers, sleeves and nozzles, and only 845 short tons went into pencils. Here's another fact for us to remember - only five percent of the graphite we use goes into lead pencils. We are learning more and more about an event we called a "pencil." But how much of this would we have learned had we not projected a meaning to this event, gone on abstracting from that meaning until we reached a generalization, and then, before comparing our generalization with the event itself, projected a meaning to the generalization orally? Nothing. Communicability of our hypotheses must be established before they gain coherence. They must be tested by the abstractions of other nervous systems under other conditions before they become established theories.

CHAPTER IV

THE PROCESS OF INTEGRATION

The definition which Webster gives to "integrate" is "to form into a whole; to unite or become united so as to form a complete or perfect whole; unify; as to integrate the plots of a play." This latter similie is particularly apt when we consider what we mean by integration in the nervous system. We must remember that the nervous system, while we are awake, is being continuously bombarded from without by impacts upon the five senses and from within by vestiges of memory, inspirations, and other impacts originating inside the skin. To each of these the nervous system seeks to project a meaning. This is done by moving the impacts or events up levels of abstraction until they can be dealt with as a words, descriptions, inferences, or generalizations.

The dividing line between these levels is not always too sharp. While we generally know whether we are on the word level or the description level, it is not always too easy to realize where a description ends and an inference begins. Most of the work of judges in court trials is concerned with ruling on such points. What is called "leading a witness" is merely an attempt to identify (treat as if they were the same) a description and an inference. An attorney will say to a witness: "Now Miss Smith, you say you saw this man entering the window?"

"I saw someone entering the window and later, when I thought about it, I came to the conclusion that it must have been this man."

"What led you to this conclusion?"

Opposing counsel: "I object your honor. We are not interested in what conclusion the witness came to, but what she saw."

Judge: "Objection sustained."

Here the witness was identifying a description with an inference.

Identification of descriptions with inferences is often unconscious, but sometimes it is deliberate. You ask the salesman who is trying to sell you oil stock:

"Have you struck oil yet?"

"My dear sir, I am offering you this stock at ten cents a share. Within a fortnight I can almost guarantee that it will be worth a dollar."

"Have you struck oil yet?"

"The geologists have reported that at point 'A' on this map the formation of the rock is such that we couldn't possibly miss."

"Have you struck oil yet?"

"No!"

The attempt to identify an inference with a description here is quite plain.

It may be said that most indentification of levels of abstraction takes place between the description and the inference. This is probably because, while we describe by emphasizing differences and similarities, we infer by integrating, or by unifying all the abstracting regarding the event which our nervous system has done up to this point. On the inference level we are bound to engage in more evaluation than on any of the other levels. In forming the inference that "the graphite in this pencil came from Ceylon", I first observed the pencil as an event on the process level about which I knew very little; I knew more about it when I projected a meaning to it as an object; I knew still more about it when I found a word for it; and finally, when I described it, I learned a great deal more still about it. Then I began to gather all I knew about it together in my integration concerning it—that it was an event; that it looked like an object; what it's name was; and all that I knew about other pencils when I began to describe it. It was when I left the description and began to unify my knowledge into an inference, that I forgot I was no longer describing what I had seen, but was using hearsay evidence to complete the integration process. Yet I could not remain on any level of abstracting indefinitely, without becoming a hum-drum bore. As a rule people are more interested in your inferences than they are in your descriptions. If they themselves can see the object which you are looking at, at the same time that you are looking at it, they don't need your description of it. Even if it is your description of an object, which they have never seen, it gets to be boring after a while. That's the reason travelogues and documentaries are not as interesting to most people as commentaries or criticisms. We like to hear how the other person unifies what he has seen, and what conclusions he draws.

If he goes beyond what he has seen himself and surmises or supposes something he has never seen in forming his inferences, this too is interesting, provided we know where the description leaves off and the inferring begins. In other words, both he and we must be conscious of the abstracting he is doing, as he does it.

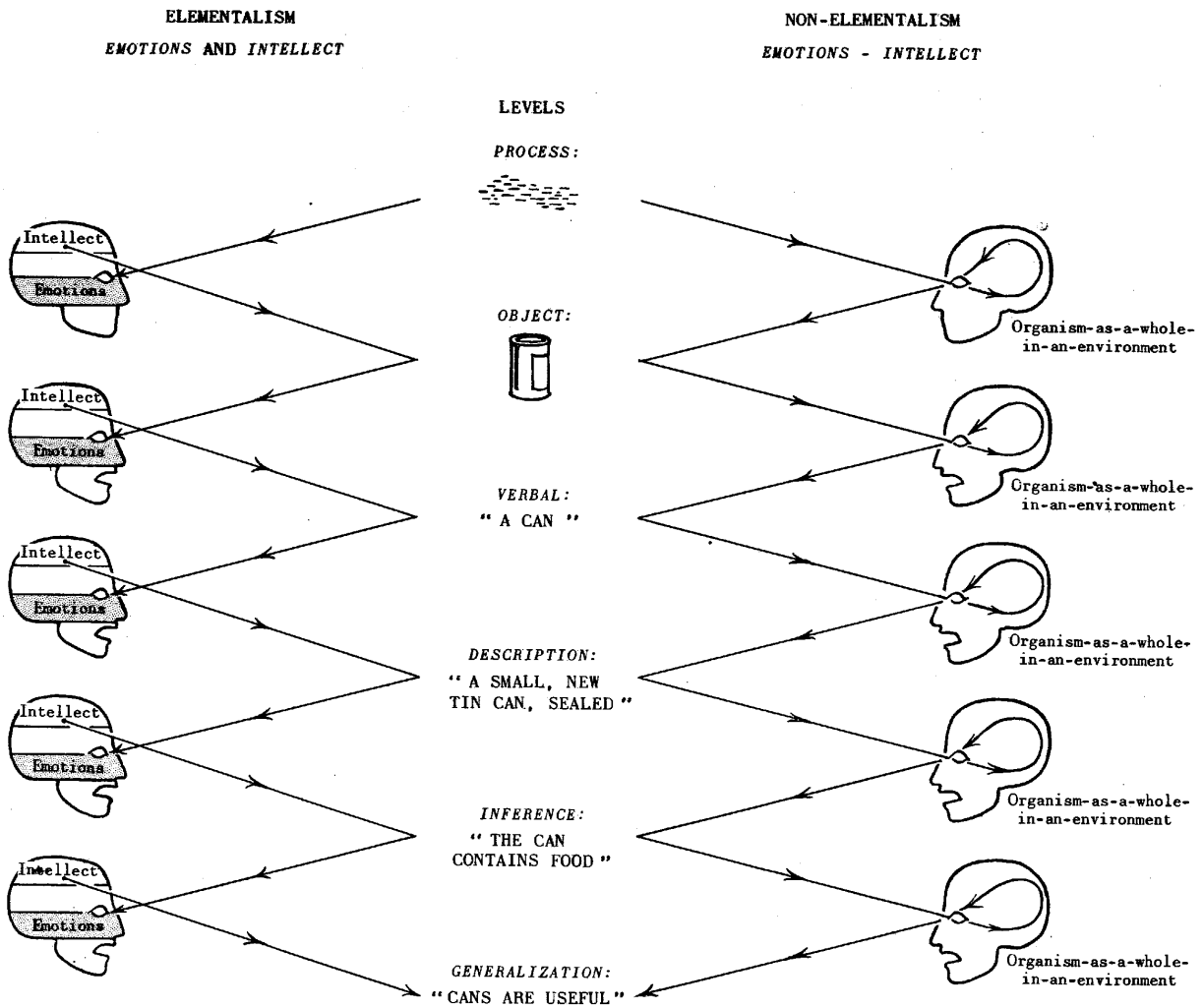
The order in which we abstract is most important. If we start with some generality based upon vestiges of memory or idea and commence comparing it in structure with the event for similarity, we often find that when we reach the inference level on the way down to the event, our integration has been faulty. We have included more in our inference than the description justified. If we then ignore this discrepancy and pass over the description entirely in order to reach the word, then the object

and finally the event level, we will find that our generalization is not similar in structure with the event. At this point we usually seek to ignore the dissimilarity. We say, "All right, the lead in all pencils does not come from Ceylon. So what of it?"

Confusion of orders of abstracting usually arises when we have ideas (inferences) before sensations (events). Sometimes we objectify. With no event whatsoever, we project meanings into objects. We may do this consciously or unconsciously. If we do it consciously we are acclaimed as great artists, poets, architects, or even as constructive planners. But if we do it unconsciously we had better be watched, for unconscious objectification is one symptom of paranoia.

Consciousness of abstracting is something that is essential unless we are either unsane or a totalitarian beyond hope of redemption. If unconsciously we have ideas of world domination without events on which to base them, we usually turn out to be totalitarian. If consciously we have such ideas we usually turn out to be science fiction writers.

It is in the process of integration that most of the identification of levels of abstracting and the confusion in the orders of abstracting takes place. It is when we come to form all of our abstractions into a whole, that we treat two different levels of abstracting as though they were the same, or confuse the order in which we abstract. This leads us to consider what we mean by "order", and in considering this we are led to consider what we mean by "structure" and also what we mean by "relations", for we find that without any two of these basic concepts, we cannot conceive of the third. Nor can we have any one of these concepts without taking the other two into account. Each of these three terms, therefore, becomes a term which can not be further defined alone, without using the other two. They become our undefined terms.



CHAPTER V

UNDEFINED TERMS

A very interesting parlor game is that of defining definitions. You ask the unsuspecting victim "What is a machine?" He may define it by consulting Webster as "a contrivance of a mechanical sort." Now one of the rules of the game is that no definition may contain a word already used in a previous definition. The next step is to ask him to define "contrivance." So without repeating the word "contrive" he comes up, as Webster does, with "a mechnical device or appliance." You ask what "device" means and he says "that which is formed by design." "Design" he tells you means "a plan." "Plan" means "method of action." "Action" means "the doing of something." "Do" means "to bring about." "Bring" means "to cause to come." "Come" means "to move hitherward." "Move" means "to shift." "Shift" means "to change places." "Change" means "to alter." "Alter" means "to vary." "Vary" means "to modify." And you cannot define "modify" very well without using "change" or "vary." So "a machine" becomes a term which cannot be further defined, under these rules.

The three undefined terms we are here concerned with are "structure", "order" and "relations." The reason we call them "undefined" is that the meaning of "structure" is concerned with "order x relations"; the meaning of "order" is concerned with "structure x relations"; and the meaning of "relations" is concerned with "structure x order." Just as the physicist has reduced the universe to "protons","neutrons" and "electrons," so the general semanticist has tried to reduce all meaning to "structure," "order" and "relations."

There are, moreover, certain semantic characteristics of each of these terms, which have important bearings upon semantic analysis. For example, "structure" involves the form of a meaning, "order" implies what of a meaning comes first and what follows, and "relations" deals with how a meaning affects other meanings.

When we are dealing with the structure of a meaning we are concerned with the frame of reference within which that meaning is contained. When we say "machine", in structure we mean all that class of objects which have certain characteristics in common and perform certain similar functions.

When we are dealing with the order of a meaning we are concerned with what comes first and what comes next with regard to it. The "order" of the meaning "machine", therefore, deals with questions of what cog moves what cam to operate what punch to perform what operation.

When we are dealing with the relations of a meaning we are concerned with how it differs from or is similar to other meanings, and hence, how it affects other meanings. Thus, the "relations" of the meaning "machine" implies how similar it is or how it differs from other "machines."

However, if we examine these three semantic characteristics, we see how the "structure" of a machine, dealing with its characteristics common with other machines, immediately ties it into what comes first in its operation (order) and how it differs from or is like other machines (relations). Similarly, we see how its "order", or what comes first, depends upon what it has in common with other machines (structure) and upon how it is similar to or different from other machines (relations). And finally we perceive that its "relations" are inextricably bound up with what it has in common with other machines (structure) and what comes first in its operations (order). Thus we can conceive of no semantic meaning which does not contain all three variables, "structure", "order" and "relations."

In logic, as in physics, we reach a point where further abstracting becomes unprofitable. Thus, Max Planck, the physicist, had convinced himself, about 1900, that the observed spectrum of radiation from black bodies could not be accounted for by classical mechanics, but only by the strange assumption that the radiated energy was given off in finite quanta instead of continuously. The quantum, in each case, he found, is proportional to the frequency of the radiation. He calculated it to be the frequency times a fixed number. That number came to be known as "planck's constant h" ($E = h\nu$). So in logic, when we have defined our definitions to such a point where we can define them no further without defining a word with the same word, we find our undefined terms, and in the rigeur known as General Semantics these undefined terms have been established as "structure", "order" and "relations."

Had Planck not stopped at "h", but continued to divide action into smaller bundles, he realized that he would be approaching that mathematical concept known as "infinity." Further quest, therefore, appeared fruitless for radiated energy given off continuously, and not in quanta, would not fit the observations. For radiation was measureable only when it had frequency, and the only way to measure its frequency was to deal with quanta that were still finite. In this sense "infinity" in physics is meaningless. If a thing is infinite, that is, without end, no boundaries can be established to its frame of reference. And, unless it can be measured, it is of no value to the operational physicist.

Similarly, unless we can establish frames of reference in our meanings, they become too ephmeral for practical use. So we say, in General Semantics, that when we have defined a meaning in terms of its structure, its order and its relations, we have reached the constant "h" of our logic.

One can readily see how necessary it is in analysis, to deal with definitions before they become unending. What we do when we analyze is essentially to divide our meanings so that we can examine them more closely as to their constituent parts. But somewhere this process of division must stop. When we can examine our generalizations, therefore, and compare them in structure with the events from which they were abstracted,

we have reached a finite quantum in space. A similar quantum in time can be reached when we compare them in order as to whether the generalization preceeded or followed the event. Finally a similar quantum in time-space is reached when we compare them in relations in order to determine whether the generalization has the same effect on similar generalizations, as the event from which it was abstracted had on similar events. In other words, whether the generalization, in each case, is proportional to the frequency of the event.

It was by applying this analytical method to our generalization "all pencils are made from graphite that comes from Ceylon", that we discovered dissimilarity both in structure (because of various types of graphite); in order (because more graphite came from Mexico); and, in relations (because more graphite used in pencils came from Mexico).

Let us, therefore, examine, separately, what we mean by each of these undefined terms.

CHAPTER VI

CLASSIFICATION (STRUCTURE)

In order to classify we must have differences and similarities in the event. By establishing the poles which mark the limits of our theory or generalization, we can form a frame of reference. This enables us to communicate to others what we are talking about. The frame of reference contains all of a group of events which are similar to each other, and, as a group, different from other groups of events. Such a group we call a class.

Within this class may be events which are different from each other. For example, in the class of events known as "pencils", we have those of different hardness, those of different color, those of different length, thickness and shape. But they all are classed within that frame of reference which we have established and which we designate as "pencils." Why? Because they all perform a similar function, namely "they make marks." Under Aristotelian logic this might be stated as a thesis such as "a pencil makes a mark." The antithesis "a pencil does not make a mark" could then be advanced. Whereupon, a synthesis "some pencils make marks and some do not" would bring us, perhaps closer to the truth. Under the new logic, however, we would look for the "sometimes true" and not the truth. The propositional function "most pencils make marks," however, would embrace both horns of this Aristotelian dilemma. For if we found one pencil that made a mark, followed by another that made a mark, we could proceed on the "if so, then so" basis of the new logic, - if pencil "A" makes a mark, pencil "B" should make a mark; and if pencil "B" makes a mark, pencil "C" should make a mark. As we proceed, however, one or two pencils would be found, perhaps not to make marks. Never-the-less, after a number of experiments we could express the synthesis of the new logic as "most pencils make marks." And we will have found that the thesis "a pencil makes a mark" is only "sometimes true."

Having found the "sometimes true" about pencils, however, it would be found that to use the definition of a pencil as "something that sometimes makes a mark" would be sufficiently concise as a frame of reference on which to build a classification called "pencils." Into this classification we could put all similar events, whether some of them sometimes made marks or not. A definition for classification purposes need not be as rigid as either of its poles.

Why do we classify? Obviously, if I wish to talk to you about pencils you want to know in advance just what it is I am to talk about. You want to know whether it includes things that make a mark with a solid or with a liquid. By establishing a definition of a pencil as Webster has as "a slender cylinder or strip of black lead, graphite, colored chalk, etc., usually encased in wood, for writing or drawing," I establish

definite poles around my frame of reference, and having done so, I can communicate with you and you will know what I mean when I say "pencil." The reason for classification, therefore, is in order to communicate.

How do we classify? Every event has structure. If this were not true we should never be able to recognize it as an event. The trouble we have had with "flying saucers" amply demonstrates this. Were these events such as to impinge upon our nervous systems in the same way a street car does, most of the confusion concerning them would be eliminated. But they impinge upon different nervous systems in widely different manners so that no two nervous systems can agree about their structure. Hence, while we classify them as "flying saucers", when we reach the description level in our abstracting from these events, our descriptions often vary so widely that no consensus can be reached.

The first step in classification of an event comes on the object level. This step constitutes an agreement among observers that they all saw something. The second step depends upon agreement among observers on the word level. They agree to call what they saw a "flying saucer." The third step depends upon agreement among observers on the description level. If I agree with you as to the general appearance of the event which we have agreed to call a "flying saucer," we have advanced still further in our classification. We can, therefore, communicate regarding the event still more easily. The fourth step in classification concerns our various inferences as to function. You may think what you saw was a weather balloon. I may think it a space ship from another planet on reconnaisance. We are, thus, apt to differ widely in our inferences. But until we can agree on function our classification will not be complete,-that is, we can not accept a common generalization about the event. Agreement on function, however, may be reached if we abandon an either-or dichotomy, and accept a propositional function. Instead of your insistense that it is a weather balloon, and my insistence that it is a space ship, we might agree that "its mission is peaceful," since it did not drop bombs on us, or otherwise attempt to harm us. Within this propositional function we may each find propositions that are "sometimes true." But by adopting this function, we can both generalize that "'flying saucers' will not hurt us."

Here, then, we have established a frame of reference with regard to "flying saucers", with its poles wide enough apart as to permit fairly satisfactory classification. This does not prevent us from extrapolating regarding flying saucers. We may continue to make inferences by setting the poles of our individual frame of references still farther apart. For example, we may say "the 'flying saucer' is operated by terrestrial magnetism" or "the 'flying saucer' has no passengers on board." These are extrapolations from the original frame of reference, and they are not only legitimate, but absolutely essential, if we are ever to learn more about "flying saucers." For if we extrapolate that "flying saucers" are operated

by terrestrial magnetism, and treat them "as if" they are, then by constructing anti-magnets we find that we repel them and by building magnets we find that we attract them, and others find the same thing to be true, our assumptions (inferences) may approach communicability and coherence. Moreover, our classification will have been advanced another step toward completion.

How can we have a "classless" society? The answer is that we cannot. In advancing this thesis, Karl Marx showed his utter ignorance of the working of the human nervous system. As long as we must have undefined terms in order to communicate, one of these must be "structure," and as long as we accept "structure", we must accept classification. For when we say "no class" we not only deny structure, but we classify. We distinguish between the "class" we deny and the "no class" we affirm.

CHAPTER VII

SEQUENCE (ORDER)

If my office is on a straight-away highway, a mile from my home, with no stop lights, then travelling at 15 miles per hour I could get home in four minutes; at 30 miles per hour, it would require two minutes; at 60 miles per hour, I could make it in one minute. Would the distance seem the same to me at all three speeds? The fact is that the faster we travel, the less space we seem to cover. There is something about space that is inextricably bound up with time.

Circus performers who make their living being shot out of cannons tell us that the experience is peculiar in many ways. Most peculiar, however, is the fact that the landing platform seems so far away, yet the feat seems to be accomplished almost instantaneously.

This has been explained by the fact that all of us have experience with time but few of us have experience with space. We deal with time all our lives and some of us can remember straight back to earliest childhood. But few of us have travelled around the world and some of us have never been more than a hundred miles from our birthplace.

Modern physics teaches us that whenever we have a "here" we also have a "now." It is impossible to separate space from time. Yet they are not the "same." They are indivisible disparates. No longer does "C" mean "the speed of light." Light is no longer conceived of as "a thing travelling." Einstein's "photon" (light wave) emanates from the sun and eventually reaches your eye. It takes time to cover the space through which this emanation takes place. But the space-time concept prevails over the old "miles per hour" and the operation is calculated in light-years.

In his photo-electric effect, Einstein conceived of photons being transformed in a tube into radio waves, and emanating as such until they encounter another tube which retransforms them into the photons which appear on your television screen.

In all these concepts, however, order is involved. First things done in the television studio become first things appearing on your television screen. If you reverse the process in projecting, it becomes ludicrous to a human nervous system used to the natural order of seeing the aquatic mermaid climb up the ladder to the diving board and pose before taking the plunge. If we see her pop out of the water feet first, turn and land on the diving board, it becomes laughable to us. This is because impingements upon our nervous system from outside the skin, once they contact our five senses, can travel only one way through our nerve fibres until they reach the spinal column-thalamus-cortex complex we

ordinarily call "the brain." Small synapses, like small doors swinging only one way, assure this polarity. This is known as the natural order.

In order to assure our survival, we have found that our actions, as well as our "thoughts", should follow this natural order. Thus sequence becomes of paramount importance to us. We must establish what follows what in space-time. We must not only always be "here" when it is "now", but we must know that we were "there" when it was "then", and will always be "there" (in the future) only when it is "then" (in the future). Thus, time establishes a serial order for us and this has been called a "serial universe."

Now what has all this to do with analysis, you may ask. When we start to take something apart we must first observe how we take it apart, if we ever hope to put it together again. So when we analyze something we do it sequentially. If it is an intricate watch which the watchmaker seeks to repair, he must take off certain wheels and cogs first before he takes off other wheels and cogs, so that he puts them back again in the same order. If he fails to recognize order in his operation, the watch, when it is put together again may not run. So when we have a problem to analyze, what do we do? We separate it into its constituent parts in a given order. The simple problem in arithmetic of dividing 1998 by 3, is accomplished in three separate stages, and necessarily in a certain order. First we divide 1900 by 3 and get a quotient of 6+100. Then we divide 190 by 3 and get a quotient of 6+10. Finally we divide 18 by 3 and get a quotient of 6. Our answer is 666. If we began by dividing 8 by 3, we would get nowhere. The order in which we analyze is of utmost importance.

Why is it necessary to follow order? The answer is "in order to survive." Long ages of experience, since his cave man days, and perhaps even more remote, have taught creatures how to survive. Man had to smell his food before he ate it, so as not to eat decayed, poisonous food. A dog still turns round and round before he lies down, in order to make an indentation in the underbrush which will help hide him from his enemies while he is sleeping. Give a cat high-cheese to eat. She will mistake it for feces and seek to cover it up so as not to leave a clue to a possible following enemy. Why is it "bad luck" to walk under a ladder? Because a ladder once fell on an ancestor, and it was more effective to put a tabu on it for his children's survival, than to stop and explain why the children might be hurt if the ladder fell on him. Why is the 13th bad luck? Look for some terrible happening on that day of the month in the past history of the race. Man, of all the animals is able to communicate the past to his descendants. Most of that communication has to do with stressing the natural order for survival. And in all his history, man has found that no two events were ever identical. They were always different in structure, and also different in space-time. Therefore, relations between events were established because they were non-identical.

CHAPTER VIII

NON-IDENTIFICATION (RELATIONS)

In space-time relations, there is no "sameness." As soon as an event happens in the same place and at the same time as another event, the two events become not the "same " event, but one event. And we can have relations only between two or more events. If I build a bonfire and beside it you build a bonfire, we have two bonfires. There are relations between them. One may be smaller or hotter than the other. They will be burning at the same time, but not in the same place. But if I pick up my bonfire on a shovel and put it on your bonfire all relationship between the two fires ceases immediately, and the relationship cannot be restored until I rake part of the new combined bonfire into a different place.

So it is with the atom. One type of uranium atom consists of a nucleus with 235 protons and neutrons. Put this atom in an atom-smasher and bombard it with other atoms so that some of the 235 protons and neutrons fly off, and the result is a totally different atom which we call by another name entirely. Take an atom of hydrogen, which is a proton with only one electron revolving about it, and subject it to fission of another atom and the atomic fusion which results will cause a greater disturbance than that caused when we took away the protons and neutrons from uranium, by atomic fission. Splitting and fusing the atom, therefore, are primarily space-time relational changes.

When we turn from physical events to mental concepts, the space-time relationship is equally apparent. If I identify a description with an inference, I perform a semantic fusion, which often blows up in my face. If you are selling me mining stock and I treat all your inferences as descriptions, you will soon have my money and I have your worthless stock. It was to prevent you doing this that the U. S. securities and exchange commission was established in 1934. This commission has the power to prevent issues of stock from bein offered to the public, unless all the inferences in the prospectii can be proved to be in fact, descriptions.

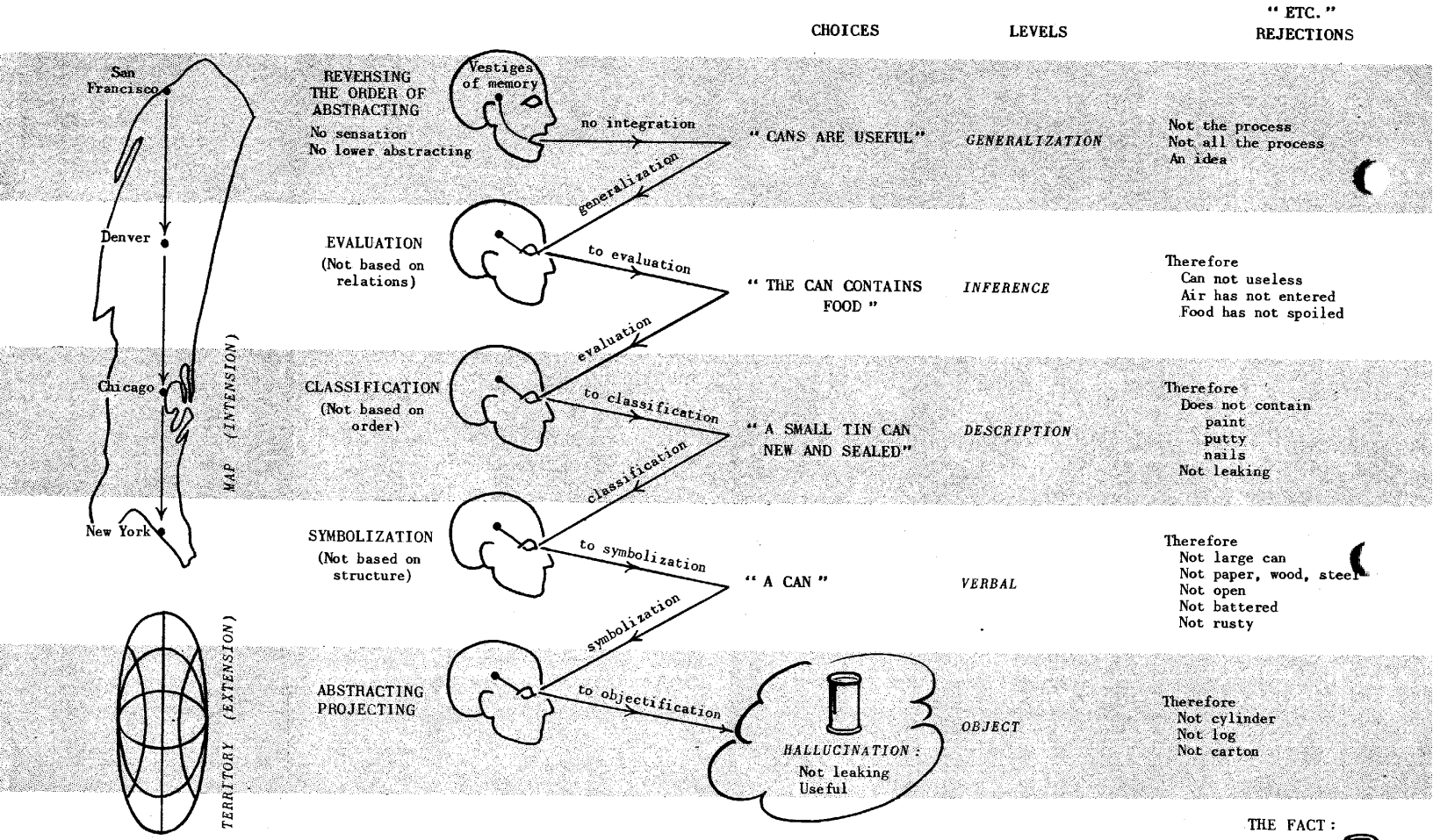
Identification of levels of abstracting between the event (or process) level and the object level are sometimes still more disastrous. To identify an event with an object and thereby treat an event as if it were an object, then I am objectifying, especially if the event arose from my vestiges of memory.

"Last night I met upon the stair a little man who wasn't there.
He wasn't there again today. My God! I wish he'd go away!"

Identification of levels of abstracting is so common that to it Alfred Korzybski, the father of General Semantics, attributed most of the difficulties in politics, religion and marriage. In analysis,

HOW WE GET HALLUCINATIONS

CONFUSING ORDERS OF ABSTRACTING: IDEAS FIRST - SENSATION NEXT



however, we must be particularly on the lookout for identification, because we may find that most of the tangled thinking which we encounter can be traced to it. After one of my lectures on "general semantics and dialectical materialism", in which I was describing the totalitarian "mind", one of my students asked me "How does all this fit into religious belief?" "Just as it does into any other belief," I replied. "We can have ideas before sensation unconsciously in religion as well as in politics." At this another student jumped up and delivered a tirade against General Semantics in general. It was some little time later that I learned the reason for his outburst. He had unconsciously identified my statement as an attack on his religion. I never had a chance to explain to him that a church dogma may consciously place ideas before sensation and thereby serve a constructive purpose. It is only when its followers do so unconsciously, (as unfortunately he himself had done), do they display the totalitarian touch.

Conscious identification of levels of abstracting is of course quite different from unconscious identification. When I wrote up the prospectus by means of which I sold you the worthless mining stock, I was consciously identifying my inferences with my descriptions. If, however, I should tell you I saw a ghost last night and really believed that I did, I would be unconsciously identifying a vestige of memory on the event level with an object, on the object level.

Non-identification is merely the realization that no two events are ever the "same." If they are identical they are no longer two events, but one. Pauli, the physicist, was the first one to advance the theory that no two particles can be in the same state (that is in the same place at the same time). M. Couturat defined "one" as "the number of the elements of a class in which any two elements are identical." The thought is the same in both instances: when two things become identical they are no longer two things, but one. So long as events happen, therefore, they must always be different from any other event that ever happened before or will happen after, if in no other respect than in time. The pencil I hold now at this instant is not the "same" pencil I held an instant ago. During that instant the electrons have moved about the nucleii in the atoms of which it is comprised, into entirely different positions. Sensationally, the pencil is different, although ideologically, it may be the "same."

CHAPTER IX

INTERROGATION

The purpose of any interrogation is to find out what the person being interrogated knows. And the first thing to realize about knowledge is that it is an activity of the human nervous system inside our skins and not the events themselves. Knowledge is a file cabinet full of objects, words, descriptions, inferences or generalizations from events which we have abstracted from them. Knowledge, therefore, depends as much on how you evaluate what you observe as how you observe it. It was not until Magellan had circumnavigated the globe that we knew the world was round. What we know about the world today is not what we have seen of it but how we have evaluated from what we have seen of it.

Most interrogation, therefore, is to find out how someone evaluates what he has seen, heard, smelt, tasted or felt. On the television show "V-Day + 10" a number of persons were recently interviewed about their impressions of what V-Day, ten years ago meant. We all remembered pretty well what happened on that day. The German high command met the Allied high command and signed a document of unconditional surrender. What we didn't know, and what the television program showed us, was what Generals Bradley and Smith and Messrs. Harriman et. al. thought the victory meant. This we only learned perhaps by watching this television show ten years later. The Chinese who interrogated Father Ricci early in the sixteenth century didn't know that the world was round because they had never learned that Magellan had circumnavigated it. They learned this from Father Ricci and then they knew it, if they believed him.

One purpose of any interrogation is to "get at the facts". A "fact" has been defined as the description of an event concurred in by two or more witnesses qualified in all respects to make an authentic observation. A "secret" is essentially a "fact." If it is not the description of an event in which two or more witnesses concur, then it is a vagary of the imagination not worth trying to discover by interrogation. With two witnesses, however, the incidence of discovery of a secret "fact" is twice as great as a secret idea, because another witness has had to help establish a "fact," even if it remains a secret between two witnesses.

The method of discovering a secret fact is first to discover a clue. The general semantic theory of knowledge is that we only learn from what we or someone else knows.. Two people know a secret fact. To learn it a third person must realize that three elements are involved: (1) an event; (2) witness No. 1; (3) witness No. 2. Either of these elements may be the clue. It is necessary to "know," therefore, either that the secret event happened, or who witness No. 1 is; or who witness No. 2 is.

If we know the event happened the problem is (A) to discover one of the two witnesses, and (B) to get him to describe and evaluate it for us. The process is one of elicitation. Elicitation may prodeed either by induction or deduction. It may also proceed by eduction. Induction is the method of building the generalization from the event. Deduction is the method of assuming a generalization and proceeding back down the levels of abstracting to prove that it is similar in structure to the event from which you assume it was abstracted. Eduction is evaluating the number of generalizations which are applicable and the number of factors which are motivating. In induction you work from a part to a whole. In deduction you work from the whole to the parts. In eduction you keep going up and down the levels of abstracting in order to confuse or lull your opponent into a false sense of security.

For example, you know of an event, say that there was an explosion over Nevada accompanied by a shower of tinsel-like substances. You "know" that a tinsel-like substance is used to deflect radar reception by distorting sound or light waves. The problem is to find someone who "knows" whether this event meant that or not. You contact a scientist at Las Vagas. Contacting him you may elicit information from him in any of three ways: (A) by appealing to his egotism; (B) by assuming knowledge you do not have and courting his confidence in you; or (C) by using A and B either together or alternately. In the first instance you proceed by induction. You make a statement which the scientist scornfully denies and by denying the false part leaves the true part. In the second case you proceed by deduction. You deliberately assume to "know" the whole. If you are right he may concur or at least not deny which may be the equivalent of concurrence. If you are wrong he may deny but as you have come close, give you a hint which, in turn, you may use as a whole with another scientist, and so on, until only one conclusion is apparent. The method depends upon your having a goal unknown to your opponent and keeping persistently at your goal. In the third case you proceed by eduction, first appealing to his egotism, then assuming knowledge or by using both together or alternately. In this manner it becomes more difficult for the elictee to determine what your goal is and thus evade disclosing what you want him to disclose.

Suppose you had on your ball team a pitcher who could not only throw curves, drops, slow balls, "spit" balls, etc., but who also had the uncanny knack of throwing a ball to home plate while apparently turning toward second to catch a man off base. All rules are off in interrogation and there is no reason why eduction should not be used in place of the two time honored techniques which we have inherited from the Czarist Cheka, namely induction and deduction. It is, perhaps, more than incidental that the word eduction is "education" minus the "a", which in General Semantics always stands for Aristotle.

CHAPTER X

BRAINWASHING AND THE "BIG LIE"

When Pavlov found that if he showed a dog meat when it was hungry it's mouth watered, he decided that the dog's mouth watered because he showed him meat. Then he rang a bell when he showed him the meat. The dog's mouth still watered. Then he took the meat away and rang the bell. Still the dog's mouth watered. From all this, Pavlov reasoned that a dog can be conditioned so that its mouth will water whether there is any reason for it to water or not. When he told this to Stalin, that comrade said Pavlov had made a great discovery and the comrades began to apply the conditioned reflex technique to prisoners whom they wish to force to confess to crimes against the state. Strangely enough, it worked in many cases. Even though humans have a well developed cortex, much better developed than that of a dog, the Russian prisoners, their wills broken by torture and the administering of drugs, generally succumbed to this "brain washing" and when brought to trial babbled forth confessions of crimes many of them had never committed.

The answer to "brain washing" is the application of the cortically controlled delayed reaction or conditional reaction. The prisoner must continually remember that cause must precede effect. If this is so, then that is so. He must not permit himself to be deluded by seeing this and identifying it with that, so that he comes to believe this is the same as that. If a confession of his supposed crimes is read to him, after torture and drugging, if he can take impingements on his nervous system to his cortex and not leave them in his thalamus or spinal column, he will find records stored there in his memory, which will prove the "confession" false. If one believes Arthur Koestler in his "Darkness At Noon", however, this resistance may eventually bring about his liquidation. But some of our GI's in Korean prison camps who were subject to brain washing were able to resist it. The point is that the victim must be conscious of abstracting at all times; must know what level of abstracting he is on at all times; must exercise in conditional reactions continuously, so as not to be trapped into conditioned reflexes.

Similarly, the "big lie" technique in psychological warfare consists of timing and spacing. The "big lie" must be told before the opponent has a chance to counter it. Then it must be iterated and reiterated until the public begins to believe it. After it has been said it can, of course, be denied with proof that it is a lie, but this often too late. It takes a long time for the truth to catch up with it and by that time the harm has been done. When Agnes Smedley, the American woman who headed up the Red Army's espionage net in Shanghai in the 30's, put out the "big lie" that the Chinese Communist's were nothing but "Agrarian Reformers", this "big lie" resounded around the world and was repeated by every fellow traveller in every chancery on earth. The state department's "White

Book" contained dispatches from Davies, Service, et al, all China-born and all erstwhile associates of hers at Hankow, where the statement was repeated ad nauseum. It reverbrated through the halls of Congress. Only time proved how false it was together with the corollary that the Chinese Communist's made the Grand March to Yenan, not to be in a better position to receive aid from the Russians, but because they liked the climate better there.

The countering of the "Big Lie" technique was successfully accomplished at the Bandung conference by Clayton Powell, negro representative in Congress from New York state. Mr. Powell, midst the raised eyebrows of the State Department whose policy it was to ignore the conference officially, travelled to Bandung at his own expense and getting hold of some advance publicity from Peking, from which it was evident that Chou En Lai would be asked questions about the American negro being in the same plight as the South African negro, called a press conference of his own, before Chou could call his, and made categorical statements about how the American negro was being treated with enlightenment by the present administration. Being a negro himself, just from America, his statements of the "big truth" completely floored the contemplated "big lie" technique of Chou. Not only that, but they sounded the tocsin of the whole conference, which wound up as a fizzle for the Commies and their fellow travelers.

CHAPTER XI

THE TECHNIQUE OF GOVERNMENT ORGANIZATION

All organizations are made up of individuals. Most attempted reorganizations fail because this fundamental fact is overlooked. The individuals, each with different motivations, are shifted about on a chart and the result is called "reorganization." It is nothing of the sort. Unless we know what moves a person to act the way he does, we have not even scratched the surface, in any organization.

Motivations have been classified by psychologists into several main headings:

"BAD"	"GOOD"
Fear	Reward
Greed	Betterment
Power	Patriotism
Revenge	Promotion
Pique	Praise

What causes people to act the way they do is usually their reactions to the actions of other people. Treat a man like a thief and he may react like a thief, though innocent of any wrongdoing. Call a man a "Communist" and in his attempt to defend himself, he may resort to the techniques of a cornered rat. The result is negative. It has proved nothing except that humans react to words.

Any organization consists of an intricate maze of relations between humans. In a group of 4 people there are 28 relationships:

a to b, c, d	3
a to bc, cd, bd, bcd	4
b to a, c, d	3
b to ac, cd, ad, acd	4
c to a, b, d	3
c to ab, ad, bd, abd	4
d to a, b, c	3
d to ab, ac, bc, abc	4
	28 TOTAL

Another thing to remember is that responsibility must be delegated. No one individual can directly supervise more than a very few people it has been estimated. The number of relationships grows exponentially, not additively. The human nervous system may break under the strain of attempting to encompass the 22,620 relations involved in supervising 12 assistants, to say nothing of understanding the numerous motivations which activate each assistant and react upon every other assistant.

The key to successful organization is, therefore, first a clear and definite objective to which the personnel may key their motivations. Without such an objective or objectives the human antennae cannot be expected to pick up the meaning and purpose of the work they are given to do. Without clear meaning and purpose to work, we get only indifferent response.

People do not react realistically to high level objectives. If you want a group of carpenters to build a house, you must first furnish a blueprint, showing the dimensions and placement of every brick and every board. You can say to one carpenter, "Build a 6 room house," and by furnishing him with the material, he may produce a 6 room house; but if you want a certain kind of 6 room house, you must be specific, even to one carpenter. Tell two carpenters to build a 6 room house and a dispute will immediately arise between them as to what kind of a house you want, or what kind of a house each thinks you want.

Having established your personnel relationships and your objective, your next step is to furnish the motive power that causes the personnel to attain the objective. The finest automobile will not run without fuel. The fuel in any organization is incentive. Unless the incentive is made clear to each operator, he becomes an automaton or a drone. He is dead wood. Furnish the incentive and let him work out his own problems, within the group and cooperating with the group. The incentive must also be realistic and not on too high a level. A raise in salary is usually worth a dozen merit badges.

In any reorganization there are many blockages and bottlenecks. A few sour relationships between the thousands in any good sized group will react upon all the others. Inevitably there are cliques. "Who loves who" becomes the moot question. Soon one clique may become dominant. As it gains in strength it may attract stragglers. The ruler of the clique can make the head of the organization impotent. Its feuds with other cliques can disrupt an organization. The key to success is to get the leader of such a clique to work with the head of the organization or else break up the clique. In government this is not easy. People are protected by civil service rules. If the head of the organization cannot get the cooperation of the clique rulers he may fail.

Another peculiarity of government organization is the distinction between the office and the incumbant. The office is the blueprint of the job to be done. The incumbent is the person delegated to do the job. If we confuse the two, we either add more dignity to the person than his personality warrants, or we distract from the dignity of his job by identifying him with it. In either event we have not been realistic.

Not only must you know what a person does in the office he holds, but, as a security officer, you must know why he does it. The difference

between an error and a felony is often merely a matter of motivation. As a matter of fact a felony may be defined as an error with a purpose. How do you find out why people act the way they do? Certainly never from other people. The only person who knows why I act the way I do is myself. If I am able to conceal my motives from you, you may guess them but you can never be sure. And unless you are sure of my motive, you can never evaluate my action properly. The role of the security office, in any organization is almost entirely one of evaluating motives.

A thing happens. We objectify it. We name it. We describe it. We make inferences regarding it. We generalize about it. Up to the descriptive level there is usually smooth sailing. The difficulty comes in our evaluations of the event. For it is from these evaluations that we make our generalizations and it is upon our generalizations that we usually act. If our evaluations are incorrect, our generalizations are likewise wrong and our actions will be in error.

Our evaluations are the product of our own nervous system. Any person's expressed evaluation of himself becomes merely a description to us. Our evaluations of his actions are our own abstractions from an event. The importance of any interrogation is not in what a person says but what we infer he meant. Often he never says what he means. Often he says what he thinks will please us. The motivation behind a statement is more important than the statement. The background of the person making the statement often gives some clue to the motivation. Skillful evaluation is therefore a synthesis of what is said, how it is said and why it is said. The latter constitutes the motivation. No evaluation is complete without a logical motivation. And a logical motivation may or may not be "true."

The problem of our identifications is, therefore, inextricably interwoven with that of our motivations. I cannot tell you why I don't like high silk hats, but at some time or other I may have identified them with a funeral and the identification has outlived the event, to become interwoven with my motivation with respect to high silk hats. Psychologists test people by firing words at them and asking for immediate responses. They are seeking to ferret out identifications. We learn to identify early in life in order to communicate. We identify a round, red object with a stem as an "apple." Unless we identified the object with a word, we could not speak about the object. Our identifications remain with us and account for most of our idiosyncrasies, included among which are most of our motivations.

If I am an official with 12 assistants, therefore, I am dealing with 22,620 relationships, and probably 226,200 different and distinct motivations, all constantly changing and fluid. How can I delegate authority, therefore, without continually putting my head in a noose? I cannot and I do not. What I do, if I am a successful administrator is to learn to evaluate motives; to find out why people, generally, act the way they do. This will never take care of all people or all motives, for the human nervous system is the greatest security risk we have to deal with. It cannot be locked up in a safe overnight; it cannot be stamped "secret," although it operates secretly. The laws of chance

work here as they do in science, as the great underlying imponderable.

If I have six coins and toss them into the air say 64 times, I will find that there are 20 out of 64 chances of getting 3 heads and 3 tails; 15 out of 64 of getting 2 heads and 4 tails, or the reverse; 6 out of 64 of getting 5 heads and 1 tail, or the reverse; and 1 out of 64 of getting 6 heads and no tails, or the reverse. This normal distribution curve is the only thing I have to go on. So if I give odds of 3 to 1 on getting 3 heads and 3 tails, I have taken a calculated risk. This, in effect, is what we do with people. Any security risk can be reduced to a calculated risk, by applying this normal distribution curve to a given set of circumstances.

In any organization this can be applied by a system of checks and balances. Alger Hiss sat in the anteroom of his chief and apparently his chief was totally oblivious of what Alger Hiss was up to. He knew nothing of Alger's motivations. Just as a prowl car carries two officers, so responsibility may be delegated so that two or more persons are jointly responsible for action through a system of checks and balances. The chances of there being one bad apple in a group not only can thus be calculated but provided against. This does not mean that the public business must be conducted "in conference," but it does mean the public business should not be conducted "in camera."

The 22,620 relations among your 12 assistants can thus be transferred into a perquisite number of checks and balances that will add immeasurably to your own security. The further the individual nervous system with its unpredictability, is removed from unsupervised action, the higher the percentage of security, and the better the final judgement is likely to be. The role of the administrator in such a system becomes that of arbitrator or judge. Rules of action can be set up for all ordinary contingencies. When two or more people cannot agree on a course of action, or when the application of the rules to a given case is obscure, then and, only then, should the administrator be called in. In this way the overt act of a single person can be avoided. In this way responsibility may be safely delegated and a calculated risk be taken so that the head of the chief is not continually being placed in a noose.

So much for organization. How about the bad risks in an organization? How may they be detected and how eradicated? The undesirable way is the most effective. Have each person constitute himself a miniature FBI agent and spend his time watching his neighbor. This will furnish much grist to the security mill, but will not get the work done efficiently. Rather than this method, the method of attrition is preferable. If there is a "bad" risk among a group of "good"risks, arrange the work in such a manner, through the system of checks and balances, so that the "spurt" or erratic curve will show. If there is always one in a group who dissents and seeks to convince the others, this idiosyncracy will soon be detected. The variation from the pattern is the thing

to watch. If it persists, it may be due to more than dyspepsia or stomach ulcers.

When the "bad" risk has been so detected do not make him a public spectacle. If he is indeed a "bad" risk, he may relish becoming a martyr for the cause. Change his duties; kick him into innocuous desuetude; transfer him to the sticks; but do not make him into a martyr or a "cause celebre." The fact that he is dealt with effectively need not be advertised. The news will get around and the quieter the case is handled, the more fear will be engendered into the hearts of remaining "bad" risks, as yet undetected. They may change their ways temporarily but sooner or later, if the events are carefully watched, they will again reveal the erratic curve.

The success of any administrator lies in having the head of the office always carrying the ball. He may rely heavily on his assistants; he may delegate most of the authority and responsibility, but he must speak softly and always carry a big stick. He must set the objective and he must set the pace. He must furnish the incentive. He must reward "good" motivation and correct or punish "bad" motivation. While he may not be able to dominate all the relationships under him, his assistants must be constantly aware of his existance and of his awareness. He must be a living symbol of the purpose he has to fulfill.

CHAPTER XII

THE POSITIVE APPROACH

The experience with the "big truth" at Bandung should provide us with the nucleus for a positive approach to the East-West problem. What we should seek to establish is an American iron-curtain, not for the purpose of keeping Russian propaganda out, but for the purpose of emasculating it before it is sent out from the Kremlin. The techniques of Russian propaganda should by this time be fairly well-known. Something happens like the U. S. artillery firing practice in Japan on Mount Fuji. It becomes a cause celebre, thanks to the Red agitators in Japan, and we are on the defensive again. Instead of waiting for this to happen, would it not have been a worthwhile gesture for us to have transferred our artillery practice to some other spot at the first inkling of criticism from the local Japanese, instead of reiterating our legal rights? Done skillfully, such a move would have obviated the dilemma in which we find ourselves. For to withdraw now would only strengthen the Commies case. But had we withdrawn at once, it might have redowned to our credit as being highly sensative to the nuances, religious and national, surrounding any such activities near the sacred mountain. Then we would not have been actuated by the "right" and "wrong", but by the "sometimes true."

The functional hypothesis can always more easily be defended than the propositional hypothesis. "Artillery practice is generally best carried out in sparsely populated areas" would have been a functional hypothesis much more easily dealt with than the propositional hypothesis: "The Japanese army always has used Mount Fuji as an artillery target." Adoption of a functional hypothesis is like occupying a forward position tentatively and then if necessary engaging in a strategic retreat. The action is the same, but the description makes it seem different.

In dealing with the "big truth" we must run the whole gamut of the levels of abstracting. First the event itself emerges. Such as the fact, during the Washington Conference in 1922 that the reduction of the Japanese naval strength to the 5-5-3 ratio must include the scrapping of the Japanese battleship "Mutsu." We all heard that for the limitation of armaments to be effective this new battleship, built with the pennies contributed by Japanese school children thru-out Japan, would have to be scrapped. Some of the delegates maintained an absolutist attitude. A few saw the value of a relative approach for sentimental reasons. Fortunately the relativists won out and another battleship, the "Settsu", was substituted for the "Mutsu" and scrapped.

In projecting meaning to the object, on the next higher level of abstracting, we ran into difficulties with the Japanese over the "fall-out" from the hydrogen bomb we tested at Bikini. "The ashes of death", as Japanese propaganda films called the "fallout", were attacked as dangerous to everyone living near the Japan current which swept westward

past Bakini and turned northward to wash the southeastern shores of Japan. Rain, drawn up from radiated sea-water from this current, was claimed to have irradiated growing vegetables in southeast Japan. All fish swimming in the current were claimed to have been irradiated. This was true. But the amount of radiation was by no means lethal, and taken in time, this "big truth" could have been advanced to pre-emasculate the "big lie" propagated by the Red front "Pacific Peace Association", which has been agitating to ban all further H-Bomb tests in the Bikini area ever since. Here was involved a simple projection of meaning from the process, which mis-projected, became known as "the ashes of death."

On the word level, perhaps the most potent use of the "big truth" was when Baron Ishii got us to sign the famous Lansing-Ishii Agreement in 1917 under which we "recognized Japan's special interest in China", according to the English text. Secretary Lansing contended that the term "special interest" referred only to economic interest and had no political or other significance. The Japanese contended that Japan's "special interests" in China were recognized although there is no way of indicating the plural in Japanese except by adding special ideographs which were not in the Japanese text. The dispute ended in 1923 when we formally terminated the agreement and with it all implication that we recognized Japan's "special interests" in China, which then included many properties of controversial character. We conceivably may have avoided this controversy through functional hypotheses such as "the U. S. is aware that Japan has special interest in China." This would have eliminated the propositional connotation contained in the word "recognizes."

On the descriptive level the functional hypothesis helps us understand better what is being described. If you are describing an individual it is more desirable to add to "height", "weight", "color of eyes", "color of hair", etc., anything which, though only "sometimes true" of him, acts as a propositional function such as "he plays the races", "he is a great ladies man". In this way we know not only what to look for, but in general where to look for it.

When it comes to the inference level, the propositional hypothesis plays its most potent part, for here we are no longer dealing with simple abstractions but abstractions from abstractions. The more functional our inferences, the more apt they are not to embarrass us. When asking my father to do something for me as a child I frequently received the reply "directly." From experience I found "directly" to be a functional hypothesis with a time limit extending variously from one minute to the millenium. In vain did I seek to change it into a propositional hypothesis by asking "How long is 'directly'?" Jeremy Bentham, in a book entitled "The Book of Fallacies" published in 1820, points out that the four great propositional hypotheses by which most great statesmen rule are "danger," "authority," "delay," and "confusion!" Within these four propositional functions may be found all of the "sometimes true" propositions necessary

to rule a state successfully.

Finally in the generalization we reach the epitome of the classical use of the functional hypothesis. When we begin to say "All men are born free and equal" we have included the "sometimes true" in our propositional function which we can seldom prove to be present. We must accept such generalizations with such reservations as the particular placetime may call for. We can never prove them on that level, but only on a lower level.

The new synthesis, therefore, consists of bringing our generalizations back to the event or process level of abstracting so as to compare them in structure with the event. If they compare closely with the event we have a new thesis, which though it be a propositional or functional hypothesis serves its purpose in the technique of analysis.